

Claims

- [c1] 1. A process for determining, for a reservoir containing fluids (W, O), the variation in the relative permeability (krO , krW) of at least one of the fluids in the reservoir, as a function of the saturation of at least one of the fluid (W, O),, the method comprising:
- a) determining, for one of the fluids of the reservoir, a saturation distribution on the basis of a measurement (SDM) of a physical property in the reservoir;
 - b) creating a dynamic model for the flow of fluids in the reservoir;
 - c) generating a simulated saturation distribution (SSD) by the dynamic model;
 - d) comparing the SSD with the (SDM);
 - e) if SSD and SDM do not substantially coincide, updating the dynamic model with intermediate relative permeability values (krO)_i and (krW)_i and repeating steps b and c.
- [c2] 2.The process of claim 1 further including, if the saturation distributions compared substantially coincide, setting the variation in the relative permeability (krO , krW) of at least one of the fluids in the reservoir, as a function of the saturation of at least one of the fluid (W, O),) as being that which the dynamic model provides under the conditions of the SSD.
- [c3] 3.The process of claim 1 wherein including injecting a fluid (W) in the reservoir before making.
- [c4] 4.The process according to Claim 1, in which, if the distributions coincide , steps a to c are repeated at least once, with the SDM being obtained at another given moment.
- [c5] 5. The process according to claim 1, whereby the basic relative permeability values (krO)_b and (krW)_b to said fluid are obtained from analyses carried out on geological samples taken from the reservoir.
- [c6] 6. The process according to claim 1, whereby the basic relative permeability values (krO)_b and (krW)_b are obtained from collections of data concerning the reservoir.
- [c7] 7. Process according to claim 1, whereby the SDM is determined on the basis of

a resistivity distribution.

- [c8] 8.The process of claim 7 wherein the SDM is obtained from the resistivity distribution by applying Archie formula.
- [c9] 9.The process of claim 7 wherein the resistivity distribution is obtained from an inversion routine applied to electric parameters measured with a network (5) of electrodes.
- [c10] 10.The process of claim 1 wherein the measurement comprises a basic measurement of the physical property in the reservoir.
- [c11] 11.The process of claim 10 wherein the measurement further comprises injection of a fluid (w) in the reservoir.
- [c12] 12.The process of claim 11 wherein the measurement further comprises a current measurement of the physical property in the reservoir.
- [c13] 13.The process of claim 1 wherein the physical property is a voltage potential.
- [c14] 14. A process for determining, for a reservoir containing fluids (W, O), the variation in the relative permeability (krO , krW) of at least one of the fluids in the reservoir, as a function of the saturation of at least one of the fluid (W, O),),the method comprising:
 - a) determining, for one of the fluids in the reservoir, a resistivity distribution on the basis of a measurement (RDM) of a physical property in the reservoir;
 - b) creating a dynamic model for the flow of fluids in the reservoir;
 - (c)generating a simulated resistivity distribution (SRD) by the dynamic model;
 - (d) comparing the SRD with the (RDM);
 - (e) if SSD and SDM do not substantially coincide, updating the dynamic model with intermediate relative permeability values (krO_i) and (krW_i) and repeating steps b and c
- [c15] 15.A process for determining, for a reservoir containing fluids (W, O), a dynamic flow model, the process comprising:
 - a) determining, for one of the fluids of the reservoir, a saturation distribution on the basis of a measurement (SDM) of a physical property in the reservoir;

- b) creating a dynamic model for the flow of fluids in the reservoir on the basis of the variation in the relative permeability (kr_O , kr_W) of at least one of the fluids in the reservoir, as a function of the saturation of at least one of the fluid (W , O), obtained from a measurement of a core from the reservoir;
- (c) generating a simulated saturation distribution (SSD) by the dynamic model;
- (d) comparing the SSD with the (SDM); and
- (e) if SSD and SDM do not substantially coincide, updating the dynamic model with intermediate relative permeability values (kr_O)_i and (kr_W)_i and repeating steps b and c.